THE Gilson SNOWBLOWER SHOP

Service Bulletin

Date: October 25, 2026

Service Bulletin # GSBS-15

To: Owners of models with 6 to 11 HP Briggs & Straton Engines

Subject: Carburetor weeping or leaking

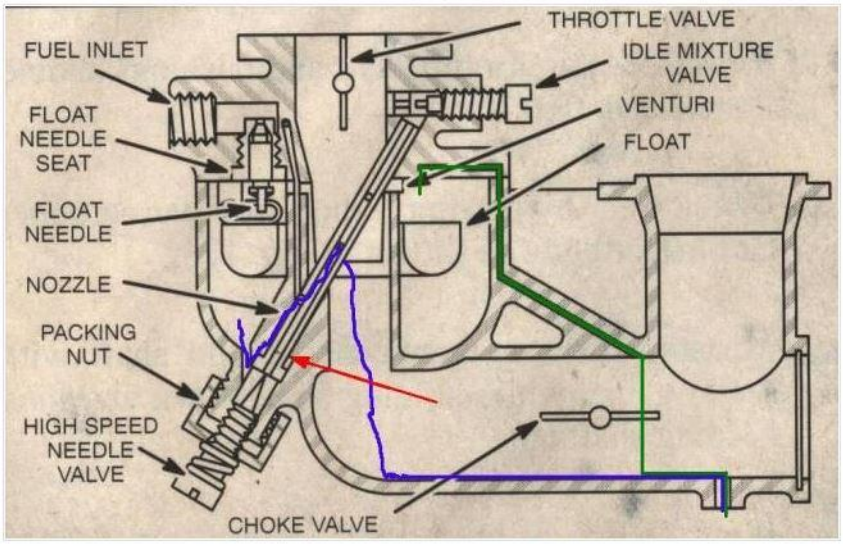
Machine Style: Snowblower, Tiller & more with mentioned engines

A common problem with these engines is the carburetor weeping or leaking from the bottom. Owners will observe that fuel is dripping from the base of the carburetor or the square heat riser box on snowblowers. Note that these parts of the engine are dry air intake sections that are not built to be liquid tight. The problem is upstream in the carburetor.

The leakage can be enough to drain the fuel tank between uses. This can result in dangerous leaking, fumes, or fire / explosion hazards. Some owners will utilize a fuel shutoff as a safety measure.

Below is an uncredited image that was sent to me that will be referred to throughout this bulletin.

This picture shows the primary leakage paths of these carbs. The blue path is from the emulsion tube seat. The green path is from a float that is set wrong, or is sinking because of a leak in the float. Either leak will put gas in the intake. This picture is a 4-bolt carb but the principle is the same on the 3-bolt units.



I will walk through the common issues starting with the simplest.

Leaking Needle Valve

A hollow brass float lifts a pointed valve needle to seat and seal, controlling fuel input. It maintains a constant fuel level in the bowl from which the carburetor aspirates. You can see these in the illustration. It can fail to seat fully and seal. This malfunction is shown as an overflow and leaking via the green path in the reference image.

1. **Rap The Bowl**

When starting a machine for the season it's not uncommon to suddenly have fuel dripping from an engine that was fine last season. This can usually be traced back to a little bit of fuel degradation that gummed the valve up. It can also happen if fuel with ethanol content was left in the system. The first step is to take the plastic HANDLE of a large screwdriver and rap the carburetor bowl a few times. This can be enough to dislodge a hung-up valve.

2. **Run to Flush**

The other possibility that can happen at anytime is a spec of debris, including material shed from the inner walls of the fuel line getting in there and preventing a perfect seal. In most cases the leakage is less than the engine needs to run on, so it will run just fine. Run the machine through a tank of fuel to let it flush itself clean. This works quite often.

Lessons to Consider

1. At the end of the season run the tank and carburetor dry. Fuel will deteriorate into varnish and turpentines over time.
2. If at all possible, use ethanol free fuel. This can be sometimes be found as "Recreational" grade, intended for off road equipment. Airports may also have options.
3. Always stabilize your fuel with a product such as STABIL. Choose the product based on the ethanol content of your fuel. Add it to the can before going to the filing station. It can do no harm.
4. Consider replacing vintage fuel lines and filters. Original fuel lines were not engineered to deal with ethanol and do deteriorate over decades. The lining can release fragments just as blood vessels can shed plaque, causing a stroke.
5. If rebuilding a carburetor, by all means include a fuel line and filter for all of these reasons.

The Flushing Technique

If the weeping persists, before cracking the carburetor open there is one unconventional technique that I have had good luck with

1. Close the fuel valve at the tank.
2. Remove the fuel line from the carburetor.
3. Using a catch container, open the tank valve to drain all fuel.
4. Add fresh stabilized fuel and drain enough to displace any remaining old fuel from the line and filter.
5. Close the tank valve.
6. Remove the high speed needle valve assembly from the carburetor. This is the diagonal hex assembly in the illustration.
7. Let any residual fuel drain.
8. Using compressed air, carefully blow into the carburetor through the high speed needle valve opening. Blow thought the fuel line fitting as well. Use repetitive bursts of air. Think enema time. This can clear passages and free a stuck float valve.
9. Reinstall the fuel line to the carburetor.
10. With fresh fuel in the tank and a catch container under the high speed needle opening open the valve and let a few ounces of fuel flow out of the high speed needle valve opening.
11. Close the tank fuel valve
12. Reinstall the high speed needle assembly. Then, gently screw the needle valve in until it makes contact. Back it out 1-1/2 turns. This is a good starting point that should get it running.
13. Open the tank fuel valve.
14. See what happens.

The first time my machines were stored with E-10 fuel the six snowblowers that were stored ”wet” all were inoperable in the fall. This got them all working fine! Since storing them dry for the off season all has been trouble free in the fall. Since switching to Recreational grade fuel, I have even more safety margin.

Still weeping?

Now we need to consider getting into the carburetor to investigate.

Nozzle Fit

The most common, stubborn and hard to examine detail is the seating of the nozzle (or emulsion tube, or high speed jet) This is the long brass part the runs diagonally up across the carburetor body. It has a beveled brass face that must make a perfect metal to metal seal with the body casting. In the illustration this problem is shown by the red arrow and the blue leak path.



Remove the high-speed needle assembly. Up in that opening you will see the screwdriver slot of the brass nozzle. It's a wide slot for the diameter and some will grind a large enough driver down to work in that opening. You do not want a screwdriver that will shave the threads. The first thing is to try tightening the nozzle. You can also try backing it out, and reseating it. Don't get carried away, it is soft brass and may need to come out someday soon. Replace the high-speed needle valve to see what happens.

If the weeping persists, you are going into the carburetor. Having the correct carburetor kit in hand is highly advised.

Getting into the FloJet Carburetor

I am going to stop short of a full rebuilt tutorial and concentrate on the checkpoints relative to weeping. Good bad and ugly FloJet tutorials are on YouTube. Watch a few before you trust any.

Things to do & know

1. Do take linkage photos before taking things apart.
2. Before splitting the carburetor in two, the long diagonal nozzle must be removed as it passes through the top and bottom halves.
3. When reinstalling head bolt removed to get the snow hood off, torque them to 165 inch-pounds.

Nozzle Seat

Examine the seat of the nozzle and body carefully. Your kit will include a new nozzle. If the body seat is pitted or scored you can try to resurface it. A wad of soft material (fabric, felt etc) on a small dowel can be used with lapping compound. Some have taken an old nozzle, removed the threads and used it with lapping compound to polish the seat.

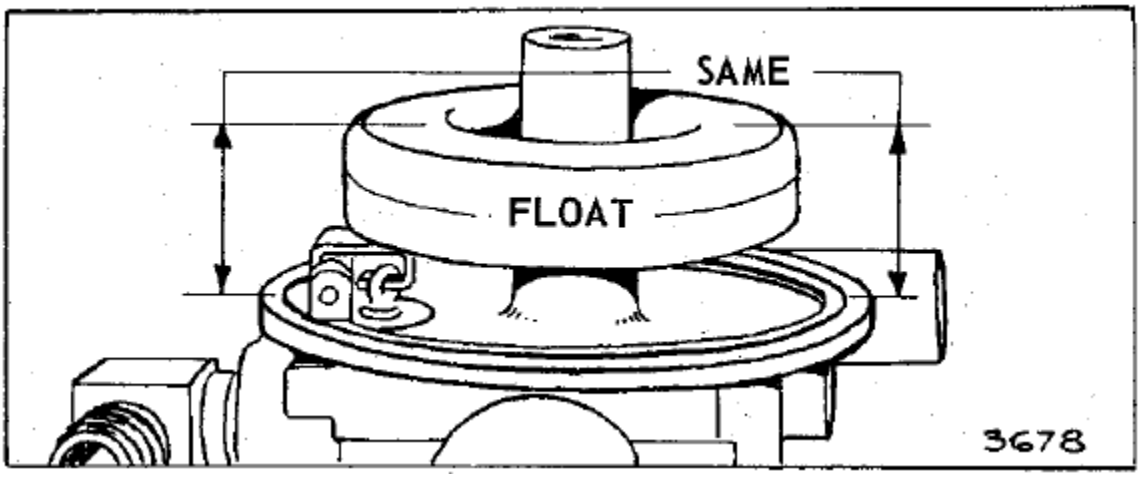
If the seat remains damaged, or you have tried all further suggestions to no avail you can get a B&S # 391413 kit. This is intended for another purpose but contains a Teflon

washer that happens to act nicely as a gasket on these mating surfaces. It is noted in a B&S bulletin found at the end of this document.

Float

It's not common, but floats can fail, leak and cease to float appropriately and must be replaced. Yours should be dry, silent when shaken, and empty in weight.

When the top half of the carburetor with float installed is held upside down, the float must be parallel to the body as shown here. Unless someone has been tinkering in there it should be okay. If not, bend the little tang that contacts the needle valve.



Needle valve

Slide the float pin out and you can access the needle and seat. The needle usually has a soft tip and brass seat. Some will have a hard pin and soft seat pressed into the well. Service kits usually include all versions just in case.

Note: If the brass seat looks fine, do not disturb it. There is a procedure to remove it, but it's not worth the risk just to say you changed it.

Body Half Fit Issues

These are not directly weeping causes, but they can allow fuel leaking and masquerade as weeping. I say this because the mating halves are above the fuel level. However a tilted machine or vibration can make them leak sources.

For a period in the late 1970s there was a rash of distorted bowls & top halves. Some are surely still out there. Others may have been damaged through poor torquing techniques.

The bottom half has a flat face and is easy to check by rubbing in a figure-8 pattern on fine grit paper over a good flat surface such as a surface plate, glass, etc. Even contact

should be apparent. If not, continue to rub. Due to part features the top is not so simple. A straight edge can be used to look for gaps.

There have been body sections with casting porosities, but if yours is a new problem you can disregard this possibility.

Another piece of this equation is the gasket. It can fail from age. It can be damaged from a prior disassembly. At this point you want a fresh gasket and immaculate faces. Torque the body screws gradually, evenly, and firmly.

I have no experience with offshore/Chinese/Amazon/ cheapo carburetors. I do hear of plenty of issues with fit and performance. Some swear by them, some swear at them. The original can almost always be salvaged unless flat out broken.

TROUBLESHOOTING CARBURETION SYSTEMS

FLOAT STYLE CARBURETOR LEAKAGE WHILE RUNNING

There are some situations that could cause a symptom of leakage while operating. These are rare and can be challenging to troubleshoot accurately. Most cases of leakage during operation can be attributed to the same problems that cause static leakage. There are however, additional possibilities when it comes to this scenario. It should be noted that there are two types of leakage while running.

The first type of leakage is external. This could be caused by deteriorated tank and strap assemblies and loose, torn or missing external gaskets (adjustment nut packings or bowl nut washer etc.). The second type of leakage is internal. A symptom of this would be an engine that displays a leak through the brass "drain" insert in the throat of the carburetor or "wets" the air cleaner element with fuel. This type of leakage can be caused by any number of problems:

- Loose or damaged main nozzle (2 piece flo-jet)
- Clogged air filter element (externally vented carburetors only)
- Excessive vibration
- Incorrect fuel inlet seat size
- Improper float level
- Clogged muffler
- Porosity in the carburetor casting
- Improper valve clearance
- Intake valve seat loose

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TROUBLESHOOTING CARBURETION SYSTEMS

SPECIFIC CARBURETOR TROUBLESHOOTING – REPAIR TIPS

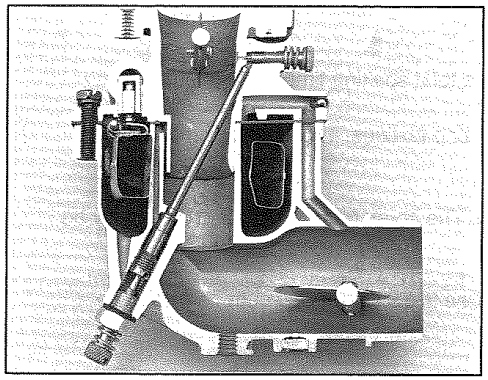


Fig. 24

BENCH TEST

You can quickly and easily bench test this condition. Install the nozzle/jet assembly into the lower carburetor body. Thread a 1/4" bolt into the base at the speed control bracket boss to use as a "handle". Grip the bolt head in a vise and position the body so that it is level. See Figure 25.

Add fuel to the bowl until it is three quarters full. If the tapered sealing area is intact, there will be no fuel leakage into the carburetor throat.

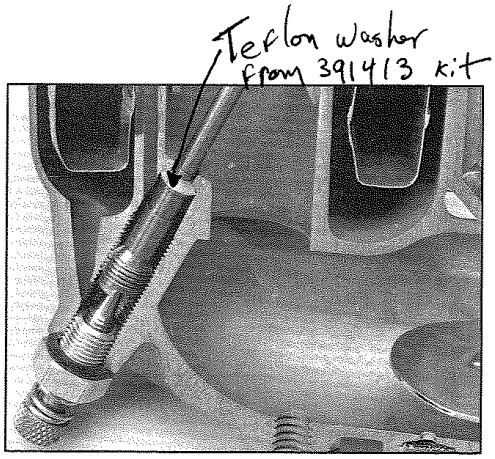


Fig. 26

TWO PIECE FLO-JET LEAKAGE

The two piece flo-jet carburetor has a unique design that can cause some misunderstandings in the field. This carburetor has a main nozzle/jet that bisects the carburetor body. Near the base or large end of the main nozzle/jet tube is a chamfered area that provides a seal between the emulsion cavity and the fuel bowl of the carburetor. If there is any defect, dirt or corrosion on the surface of the sealing area (either the brass tube or carburetor casting) the carburetor could exhibit a leak. The symptoms include: unexplained and inconsistent leakage while at rest, leakage during long coast down periods, poor overall performance.

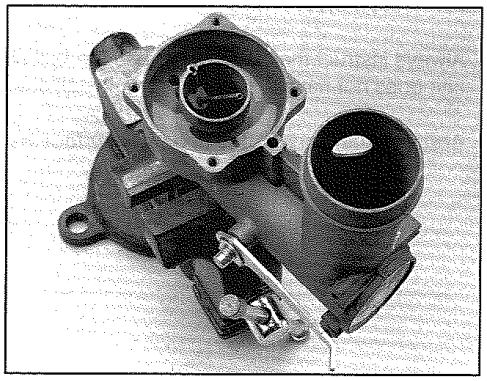


Fig. 25

TWO PIECE FLO-JET LEAKAGE (cont.)

If the sealing area integrity is in doubt, take the old nozzle and remove the threads with a bench grinder. Place a small amount of lapping compound on the nozzle at the taper and insert it into the body of the carburetor. With a jet screwdriver, gently lap the nozzle just as you would when you lap a valve in. Remove the old nozzle and clean the carburetor body completely.

Using a new nozzle/jet, install the Teflon washer from a # 391413 carb repair kit over the tube and seat it on the sealing surface of the new nozzle and install. The Teflon washer acts like a gasket providing a better sealing surface for both the nozzle/jet and the body of the carburetor.

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ADDITIONAL SERVICE TIPS

- The proper and thorough cleaning of a float style carburetor includes the removal of all parts including the welch plugs (on larger carburetors).
- The use of commercial carburetor cleaners is limited to a total soaking time of 30 minutes.
- Always use good quality carburetor spray solvents with long nozzles. These help immensely in reaching internal orifices and passageways.
- Always wear eye protection when cleaning a carburetor. The spray from the aerosol can easily be deflected and get into your eyes.
- The removal, cleaning and inspection of the inlet seat area is critical for optimum performance especially in chronic leakage cases.
- Always install new fuel lines and fuel filter (#493629 recommended) when repairing a unit with a carburetion system leak.
- Always instruct the customer to use the fuel shut off valve when transporting the equipment. If the unit does not have a shut off valve, install one.
- Always clean your hands and work surface before starting any carburetor repair.

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